UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/898,364	07/03/2001	Andrew John Schofield	GB920000099US1	1081

EXAMINER	
FLEURANTIN, JEAN B	

ART UNIT	PAPER NUMBER
2172	

7590   12/31/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/898,364	SCHOFIELD, ANDREW JOHN
	Examiner	**Art Unit**	
	Jean B Fleurantin	2172	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>14 October 2003</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-8* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-8* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some * c) ☐ None of:
   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____.
   3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application)
   since a specific reference was included in the first sentence of the specification or in an Application Data Sheet.
   37 CFR 1.78.
   a) ☐ The translation of the foreign language provisional application has been received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific
   reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)   4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)   5) ☐ Notice of Informal Patent Application (PTO-152)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .   6) ☐ Other: _____ .

DETAILED ACTION

Response to Amendment

1.   Claims 1-8 remain pending for examination.

Drawings

2.   Figure 1 should be designated by a legend such as --Prior Art-- because only that which is

old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings

are required in reply to the Office action to avoid abandonment of the application. The objection

to the drawings will not be held in abeyance.

Objections

3.   The abstract of the disclosure is objected to because TITLE of the invention should not

be in the same page as the Abstract (page 19). Appropriate correction is required.

Response to Arguments

4.   Applicant's arguments, see pages 2-5, filed October 14, 2003, with respect to 1-8 have

been fully considered and are persuasive. Therefor, the rejection of claims 1-8 has been

withdrawn. However, upon further consideration, a new ground(s) or rejection is made in view

of Mohan (U.S. Pat. No. 5,418,940).

Claim Rejections - 35 U.S.C. § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
>
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
>
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
>
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
>
> manner in which the invention was made.

Claims 1- 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent

No. 5,418,940 issued to Mohan ("hereinafter Mohan").

As per claim 1, Mohan discloses "a method for logging updates to a plurality of data

records into discrete pages in nonvolatile storage" (see col. 1, lines 49-52), "wherein a page

partially full of data is known as a partial page" as a means for recreating a page from said upon

detection of either a partial sector write or a partial page write, (see col. 5, lines 19-21), said

method comprising the steps of:

"establishing identical partial pages I and I+1 at the earliest opportunity" as a means for

writing of page in first to the last sequence, (see col. 3, lines 43-45), and

"creating identical partial pages I+1 and I+2 with a single, second write operation of D2

to both pages, whereby pages I+1 and I+2 become the new pages I and I+1 for the next logging

operation" as the state of the page can be related to the log records written for that page, in which

the LSN of the log record identifying the most recent update to the page is stored in the page

itself, (see col. 3, lines 61-65). Mohan does not explicitly disclose "in response to a data

segment D larger than the remaining space of a most recent updated partial page I," "partitioning

D into a first segment D1 sufficient to fill the remaining space of page I and a second data

segment D2, filling page I with a first write operation of its present contents concatenated with

D1," "filling page I with a first write operation of its present contents concatenated with D1."

On the other hand, Mohan discloses "in response to a data segment D larger than the remaining

space of a most recent updated partial page I" as the page had been partially written as where the

page LSN sector extent had not been written to DASD, then the page LSN would be less than the

LSN of the particular log record for that page, (see col. 4, lines 26-30), "partitioning D into a first

segment D1 sufficient to fill the remaining space of page I and a second data segment D2, filling

page I with a first write operation of its present contents concatenated with D1" as a means for

partitioning a page in the buffer into N sector such that each extent includes a status bit while the

last extent also includes an N bit mirror byte of the status bits of all of N extents, (see col. 4, line

66 to col. 5, line 3), and "filling page I with a first write operation of its present contents

concatenated with D1" as a means for recreating a page from said log upon detection of either a

partial sector write or a partial page, (see col. 5, lines 16-18). It would have been obvious to a

person of ordinary skill in the art at the time the invention was made to modify the teachings of

Mohan with "in response to a data segment D larger than the remaining space of a most recent

updated partial page I," "partitioning D into a first segment D1 sufficient to fill the remaining

space of page I and a second data segment D2, filling page I with a first write operation of its

present contents concatenated with D1," "filling page I with a first write operation of its present

contents concatenated with D1." Such modification would allow the teachings of Mohan to

improve the accuracy and the reliability of the data logging method, apparatus, system and

computer program, and to provide the list of the LSN of the latest log record written by each transaction, (see col. 7, lines 52-54).

As per claims 2 and 3, Mohan further discloses, "thereafter alternating this procedure between pages I and I+1 until a data segment X fills the remaining space of the page containing the most recent update, and at that point writing page I to the value of the most recent update concatenated with the new segment X in a first write operation and writing any remaining part of segment X into both pages I+1 and I+2 in a second write operation" as the state of the page can be related to the log records written for that page, in which the LSN of the log record identifying the most recent update to the page is stored in the page itself, (see col. 3, lines 61-65), and column 5, lines 19-21. Mohan does not explicitly disclose in response to successive data segments D, the first of which is smaller than the remaining space of the most recent updated partial page I, writing page I+1 to the present contents of page I concatenated with D. On the other hand, Mohan discloses the page in fact had been partially written as where the page LSN sector extent had not been written to DASD then the page LSN would be less than the LSN of the particular log record for that page, (see col. 4, lines 26-30). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Mohan with in response to successive data segments D, the first of which is smaller than the remaining space of the most recent updated partial page I, writing page I+1 to the present contents of page I concatenated with D. Such modification would allow the teachings of Mohan to improve the accuracy and the reliability of the data logging method, apparatus, system and computer program.

As per claim 4, Mohan discloses "apparatus for logging updates to a plurality of data records into discrete pages in non-volatile storage" (see col. 1, lines 49-52), "wherein a page partially full of data is known as a partial page" as a means for recreating a page from said upon detection of either a partial sector write or a partial page write, (see col. 5, lines 19-21), comprising:

"means for establishing identical partial pages I and I+1 at the earliest opportunity" as a means for writing of page in first to the last sequence, (see col. 3, lines 43-45), and

"means for updating with second write operation both pages I+1 and I+2 to D2, whereby pages I+1 and I+2 become the new pages I and I+1 for the next logging operation" as the state of the page can be related to the log records written for that page, in which the LSN of the log record identifying the most recent update to the page is stored in the page itself, (see col. 3, lines 61-65). Mohan does not explicitly disclose "means responsive to a data segment D larger than the remaining space of a most recent updated partial page I," "for partitioning D into a first segment D1 sufficient to fill the remaining space of page I and a second data segment D2," "means for filling page I with a first write operation of its present contents concatenated with D1." On the other hand, Mohan discloses "means responsive to a data segment D larger than the remaining space of a most recent updated partial page I" as the page had been partially written as where the page LSN sector extent had not been written to DASD, then the page LSN would be less than the LSN of the particular log record for that page, (see col. 4, lines 26-30), "for partitioning D into a first segment D1 sufficient to fill the remaining space of page I and a second data segment D2," as a means for partitioning a page in the buffer into N sector such that each

extent includes a status bit while the last extent also includes an N bit mirror byte of the status

bits of all of N extents, (see col. 4, line 66 to col. 5, line 3), and "means for filling page I with a

first write operation of its present contents concatenated with D1" as a means for recreating a

page from said log upon detection of either a partial sector write or a partial page, (see col. 5,

lines 16-18). It would have been obvious to a person of ordinary skill in the art at the time the

invention was made to modify the teachings of Mohan with "means responsive to a data segment

D larger than the remaining space of a most recent updated partial page I," "for partitioning D

into a first segment D1 sufficient to fill the remaining space of page I and a second data segment

D2," "means for filling page I with a first write operation of its present contents concatenated

with D1". Such modification would allow the teachings of Mohan to improve the accuracy and

the reliability of the data logging method, apparatus, system and computer program, and to

provide the list of the LSN of the latest log record written by each transaction, (see col. 7, lines

52-54).

As per claim 5, Mohan further discloses, "means for thereafter alternating this procedure

between pages I and I+1 until a data segment X fills the remaining space of the page containing

the most recent update, and means for writing page I to the contents of the page containing the

most recent update concatenated with the last received data segment X" as the state of the page

can be related to the log records written for that page, in which the LSN of the log record

identifying the most recent update to the page is stored in the page itself, (see col. 3, lines 61-65),

and column 5, lines 19-21. Mohan does not explicitly disclose means response to successive

data segments D, the first of which is smaller than the remaining space of the most recent

updated partial page I for writing page I+1 to the present contents of page I concatenated with D.

On the other hand, Mohan discloses the page in fact had been partially written as where the page

LSN sector extent had not been written to DASD then the page LSN would be less than the LSN

of the particular log record for that page, (see col. 4, lines 26-30). It would have been obvious to

a person of ordinary skill in the art at the time the invention was made to modify the teachings of

Mohan with means response to successive data segments D, the first of which is smaller than the

remaining space of the most recent updated partial page I for writing page I+1 to the present

contents of page I concatenated with D. Such modification would allow the teachings of Mohan

to improve the accuracy and the reliability of the data logging method, apparatus, system and

computer program.

As per claim 6, Mohan further discloses "means for thereafter continuing this procedure

into successive pages I+2, I+3, etc. until a data segment X fills the remaining space of the page

containing the most recent update, and means for writing page I to the contents of the page

containing the most recent update concatenated with the last received data segment X" as the

state of the page can be related to the log records written for that page, in which the LSN of the

log record identifying the most recent update to the page is stored in the page itself, (see col. 3,

lines 61-65), and column 5, lines 19-21. Mohan does not explicitly disclose means response to

successive data segments D, the first of which is smaller than the remaining space of the most

recent updated partial page I for writing page I+1 to the present contents of page I concatenated

with D. On the other hand, Mohan discloses the page in fact had been partially written as where

the page LSN sector extent had not been written to DASD then the page LSN would be less than

the LSN of the particular log record for that page, (see col. 4, lines 26-30). It would have been

obvious to a person of ordinary skill in the art at the time the invention was made to modify the

teachings of Mohan with means response to successive data segments D, the first of which is

smaller than the remaining space of the most recent updated partial page I for writing page I+1 to

the present contents of page I concatenated with D. Such modification would allow the

teachings of Mohan to improve the accuracy and the reliability of the data logging method,

apparatus, system and computer program.

As per claims 7 and 8, the limitations of claims 7 and 8 are rejected in the analysis of

Claims 1 and 2, and these claims are rejected on that basis.

Prior Art

6.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure. Mohan U.S. Patent Number 5,247,672 relates to computerized transaction processing

systems.

Contact Information

7.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Jean B Fleurantin whose telephone number is 703-308-6718.

The examiner can normally be reached on 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, BREENE JOHN E. can be reached on 703-305-9790. The fax phone number for the

organization where this application or proceeding is assigned is 703-746-7239.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is 703-305-3900.

Jean Bolté Fleurantin

2003-12-28